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Birds of the Great Plains (Revised edition 2009)  
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### Birds of the Great Plains: Family Ardeidae (Hérons and Bitterns)

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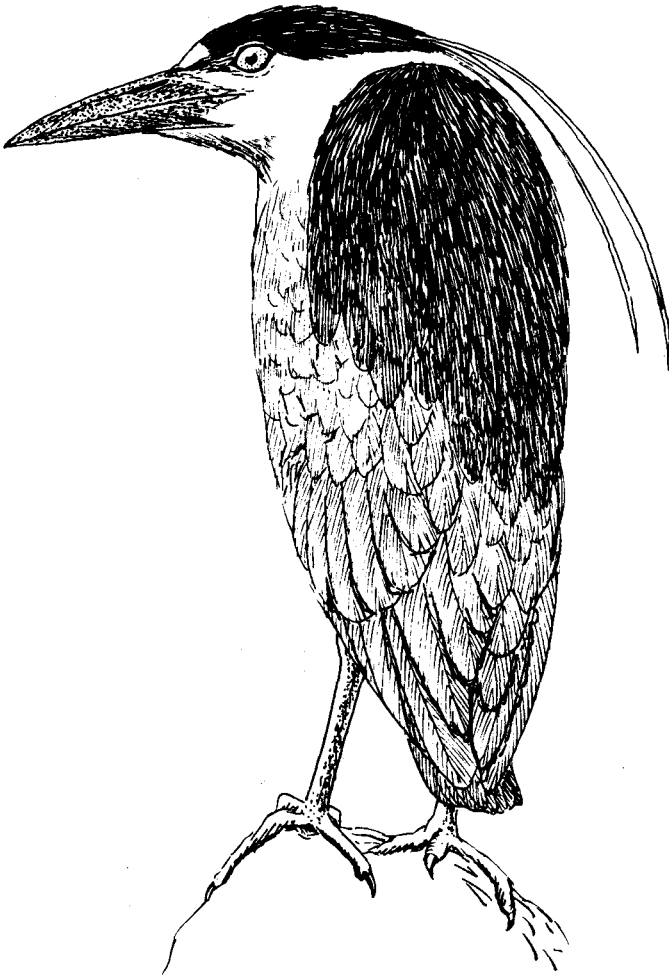
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# FAMILY ARDEIDAE (HERONS AND BITTERNS)



**Black-crowned Night Heron**

## Great Blue Heron

### *Ardea herodias*

**Breeding Status:** Pandemic and common throughout the region, breeding locally along many rivers, lakes, and reservoirs.

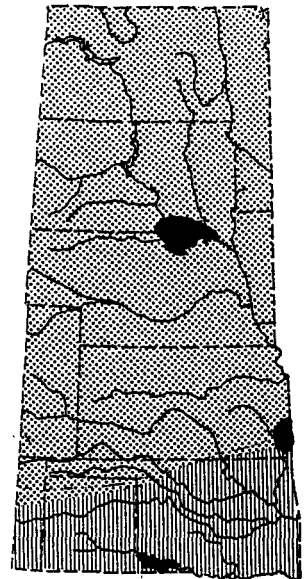
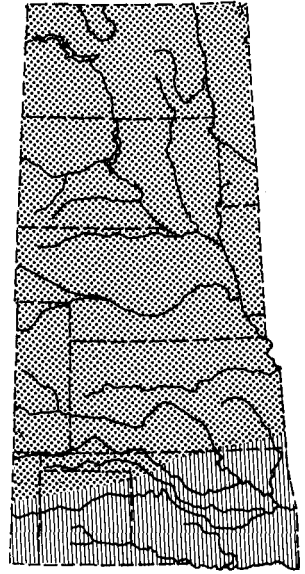
**Breeding Habitat:** The species breeds colonially in a variety of aquatic habitats, usually where there are trees, but birds have also been found nesting on the ground, on rock ledges, among bulrushes, and in other elevated situations. Within the Great Plains region, herons often nest in association with cormorants, especially where reservoirs have flooded tall trees.

**Nest Location:** Nests are usually placed in a crotch or on a large limb of a tall tree, sometimes more than 100 feet above the ground. Usually more than one nest occurs per tree in large colonies, and old nests are frequently reused. Nests that have been used for several years tend to be massive; newly made ones are often flimsy. Adults continue to add materials to the nest until the young are well grown.

**Clutch Size and Incubation Period:** From 3 to 6 eggs (36 Kansas clutches averaged 4.4), pale bluish green, smooth to slightly rough in texture. The incubation period is 25–29 days. One brood per season.

**Time of Breeding:** Egg dates in North Dakota range from April 27 to May 15. Minnesota records are from April 25 to May 20. Kansas egg records are from March 1 to April 30, and Oklahoma records are from March 15 to April 26.

**Breeding Biology:** Great blue herons are seasonally monogamous, and both sexes arrive at the nesting ground about the same time. Birds probably breed initially when 2 years old, but some variation is likely. The male selects the breeding territory, which usually centers on an old nest. Several obviously hostile displays are associated with territorial defense. Additionally, numerous highly ritualized territorial advertising displays occur, including the “stretch,” “snap,” and others. These are predominantly male displays, given at the nest site, and serve to attract females and aid pair-formation. Mutual behavior between members of a pair includes twig-passing, feather-nibbling, bill-stroking, and similar activities. Copulation is sometimes preceded by displays, such as feather-nibbling, but it may also occur without obvious display. When building or improving the nest, the male gathers materials and the female works them into the nest. Both sexes incubate, and nest-relief ceremonies are performed. The eggs typically hatch over an interval of 5–8 days, and adults feed the young by regurgitating food into the bottom of the nest. Although the young can make short flights in the nest vicinity

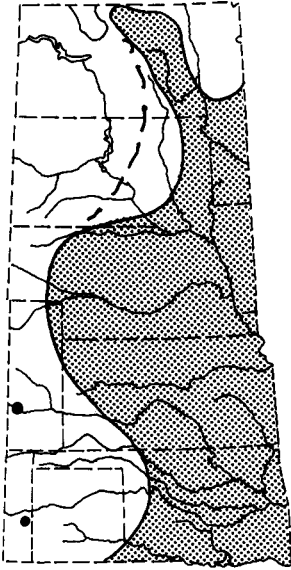


when 7 weeks old, they usually continue to use the nest and are fed by the adults until they are about 10-11 weeks old.

**Suggested Reading:** Pratt 1970; Mock 1976.

## Northern Green Heron

*Butorides striatus virescens*



**Breeding Status:** Breeds over most of the region, except for the northern half of Minnesota and the western portions of the Dakotas, Nebraska, Kansas, and Oklahoma, and the included portions of Colorado, New Mexico, and Texas. Rare in North Dakota, but common farther south in range.

**Breeding Habitat:** This heron occupies a broad range of habitats and water types, usually near trees, but also sometimes breeds in marshlands well away from tree cover. One of the most adaptable of North American herons, usually breeding as solitary pairs or in loose colonies.

**Nest Location:** The nest is usually between 10 and 15 feet above the ground, depending on the habitat, but may be directly on the ground or up to 30 feet above it. It varies in form from very flimsy to very bulky, the latter usually when it has been used many times. At times the old nests of other herons are also used, and the birds thus sometimes nest among other species of herons or egrets.

**Clutch Size and Incubation Period:** From 3 to 6 eggs, with 4 or 5 most common in northern part of range and fewer toward the south (17 Kansas clutches averaged 3.1). Eggs are pale greenish or bluish green, with smooth surface. Incubation period is 19-21 days, but incubation begins before the last egg is laid; thus there is a staggered period of hatching. At least in some areas, two broods are produced per season.

**Time of Breeding:** Minnesota egg dates range from May 12 to June 11. In Kansas, egg records span the period April 21 to June 20. Oklahoma egg dates are May 1 to June 20.

**Breeding Biology:** Males select and defend territories on their return to the breeding grounds; separate feeding territories may also be defended. Initially quite large, the male's territory soon shrinks to the area around the nest or nest site. The territory is advertised by a "flying-around" display over the breeding site and by an advertising call from a conspicuous perch. Males also perform "stretch" and "snap" displays similar to those of the larger herons, and after a female has been attracted to the territory both sexes perform "circle-flight," "crooked-neck-flight,"

and "flap-flight" displays. After pair bonds have formed, the female completes the nest; the male helps in gathering materials. Copulation occurs on the nest platform or an adjacent branch and continues through egg-laying. Both sexes share in incubation and perform nest-relief ceremonies. The young hatch at intervals and are fed by regurgitation. They remain in the nest for about 16-17 days but do not actually fledge until they are about 21-23 days, with adults continuing to feed them until that time. In areas where two broods are raised, the second clutch may be begun only 9 days after the first brood has fledged.

**Suggested Reading:** Palmer 1962; Meyeriecks 1960.

## Little Blue Heron

### *Florida caerulea*

**Breeding Status:** Breeding is restricted to the eastern half of Oklahoma, with 1952 (Finney County) and 1974 (Barton County) breeding records for Kansas. Summer visitors may be seen throughout most of the region, and nesting recently occurred at Salyer National Wildlife Refuge in North Dakota (*American Birds* 30:969).

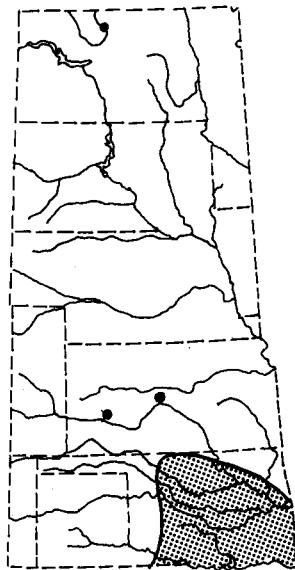
**Breeding Habitat:** Although found both in freshwater and saline environments, this species is mostly limited to inland habitats such as woodland ponds.

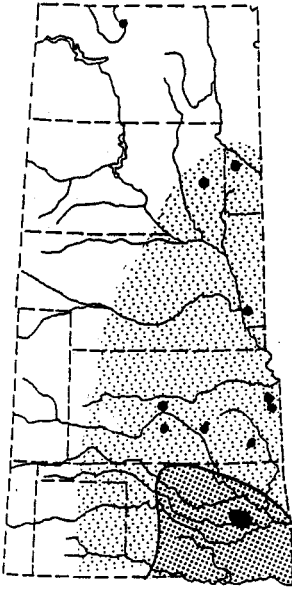
**Nest Location:** The species is colonial in nesting; nests are situated from a few feet above the ground or water to as much as 40 feet. In a Florida study, the birds usually nested on horizontal limbs with the nest wedged against the main trunk, at an average of about 7 feet above the substrate. They were thus less exposed than snowy egret nests in the same area and tended to be slightly higher. In Oklahoma a variety of broad-leaved trees have been used for nesting, often shared with snowy and great egrets.

**Clutch Size and Incubation Period:** From 3 to 6 eggs (58 Florida clutches averaged 3.7). Eggs are pale greenish blue with a blue gloss. The incubation period is 22-25 days, averaging 22.8 days, with staggered hatching of the young. One brood per season.

**Time of Breeding:** Oklahoma egg records range from April 19 to July 7, and observations of dependent young extend from May 20 to July 7.

**Breeding Biology:** Males begin to establish territories a few weeks before egg-laying by defending an area about 25 feet in diameter around an old nest or nest site. Besides various threat displays, the "stretch" display is perhaps the most important sexual dis-

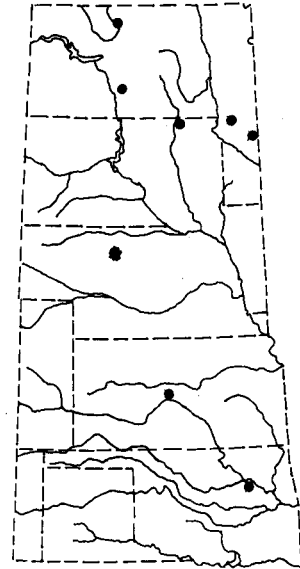




play. Unmated females are attracted to such males but are initially repulsed. Besides the stretch display, the “snap” display, with mandible clicking, is common. Early stages of pair-formation including mutual billing, neck-crossing and intertwining, but virtually no aerial displays as in the green heron and snowy egret. A strong pair bond is formed, but some promiscuous copulatory behavior has been observed. Copulation occurs on the nest platform or close to it. The female completes the nest started by the male, and the male passes twigs to her in an elaborate ceremony. Little nest-building occurs after incubation gets under way; both sexes participate equally in incubation. The young are fed by both parents, who regurgitate food into their mouths or into the nest. The young probably fledge in about a month.

**Suggested Reading:** Meanley 1955; Palmer 1962.

### Cattle Egret *Bubulcus ibis*



**Breeding Status:** A few scattered breeding records exist from several states for this self-introduced species, including Oklahoma (Tulsa County, 1962-64), Kansas (Barton County, 1973-74), South Dakota (Brown County, 1977), North Dakota (McHenry County 1976-77), Minnesota (Grant County, 1972-73, and Pope County, 1959 and 1971). No doubt additional breeding records will accrue in these and other states as the species continues to spread.

**Breeding Habitat:** Cattle egrets occur in a wide variety of freshwater to saline habitats and are more terrestrial than any native North American herons. They are highly social and normally nest among other herons. They are usually found near cattle in North America and forage largely on grasshoppers and other insects rather than on fish like most herons.

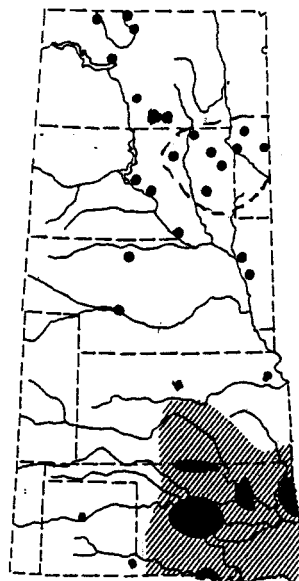
**Nest Location:** Compared with other small herons, cattle egrets tend to nest in relatively dense vegetation, at heights that are variable but usually under 20 feet, averaging about 7 feet. At least in Florida, cattle egrets nest somewhat later than other herons, and their nests are more complete at the time of egg-laying.

**Clutch Size and Incubation Period:** From 1 to 6 eggs (85 Florida clutches averaged 3.5), very pale blue or bluish white with a smooth surface. The incubation period is 22-23 days, usually 23 days. The chicks hatch at intervals, usually 2 days apart. One brood per season.

**Time of Breeding:** Dependent young have been observed in Oklahoma between June 30 and August 21. In Minnesota they have been seen between June 19 and August 4.

**Breeding Biology:** The cattle egret maintains a smaller breeding territory than other heron species, which is related to its high degree of coloniality. Males establish territories that initially cover only a few square yards and are soon reduced to the immediate area around the nest. The male performs several threat displays within this territory, and he also performs several visual courtship displays ("stretch," "twig-shaking," "wing-touching," "forward-snap," "flap-flight," and "forward") which are similar to those of other herons. Females are attracted to a displaying male and form a pair bond by flying to him, landing on his back, and subduing his aggressive tendencies by repeated blows on the head. These blows gradually change to nibbling after the male has ceased to fight back. Mutual back-biting is used thereafter by the pair as a greeting display, and it often precedes copulation. Some instances of polygamous pair bonds have been seen, but monogamy is the general pattern. The female completes the nest started by the male, which may require up to 6 days. Both sexes assist in incubation, with the female apparently sitting most of the daylight hours and the male at night. Compared with other herons, cattle egrets are very attentive to their young, and nestling mortality is low, compensating for their relatively small clutch size.

**Suggested Reading:** Jenni 1969; Lancaster 1970.



## Great Egret (Common Egret)

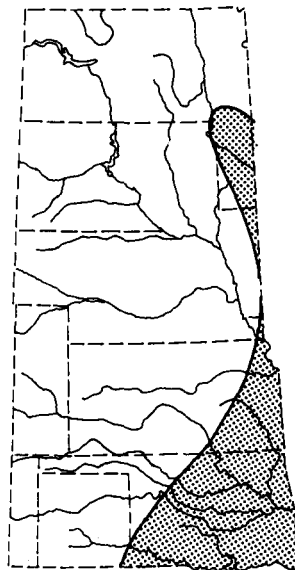
### *Casmerodius albus*

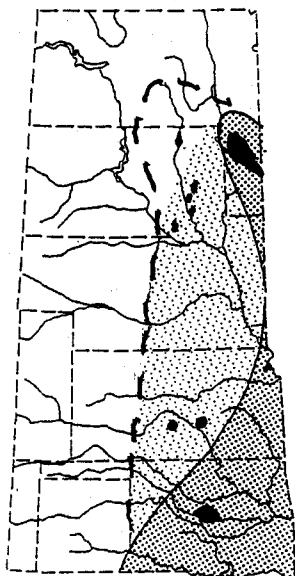
**Breeding Status:** Breeds in scattered colonies along the Red River in Texas and the eastern half of Oklahoma. Breeds sparingly and locally in Kansas (Cowley County) and the southern half of Minnesota (Grant, Pope, and Lac qui Parle counties). Becoming more common and possibly expanding its range northward in Minnesota. No breeding records for Nebraska or the Dakotas, but summer visitors may be expected there.

**Breeding Habitat:** The species occurs in freshwater, brackish, and occasionally saltwater habitats but forages in fairly open situations. It is found on streams, swamps, and lake borders, usually close to trees during the nesting season.

**Nest Location:** Nests are either solitary or in colonies, usually with other species of herons, such as great blue herons. The nests are generally between 10 and 30 feet above the ground in trees, frequently beeches or maples in the northern states and cypress in the south. They tend to be very high up and to be less bulky than those of great blue heron, but larger than those of the smaller heron species.

**Clutch Size and Incubation Period:** From 2 to 4 eggs, but 3 eggs apparently are most common, at least in Louisiana. The clutch





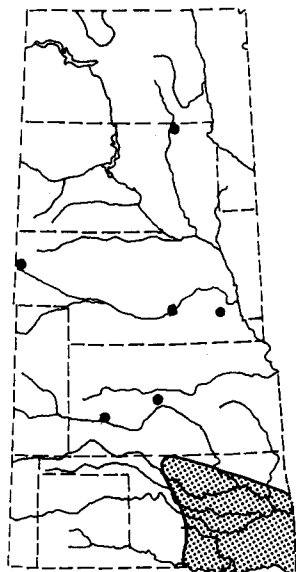
may average larger in more northerly areas. The eggs are blue to greenish blue, with a smooth surface. The incubation period is 23–24 days. One brood per season.

**Time of Breeding:** In Oklahoma, nest-building has been reported from April 4 to May 20, eggs noted May 23, and dependent young seen July 2 to August 17.

**Breeding Biology:** In the first phase of breeding males establish territories that center on nest sites or old nests, preferably the latter, since these allow for earlier advertisement displays. When a nest platform is available, the males perform several courtship displays, including a ritualized preening movement or “wing-stroking,” the “stretch” display (a vertical neck-stretch followed by a bobbing movement), the “bow” (a repeated twig-shoving movement followed by a bob), the “snap” (a downward extension of the head and neck, accompanied by a mandible snap and a bob), and a circular flight. Males thus attract females to the nest site, where copulation occurs. Within a few days a pair bond is formed, and shortly thereafter egg-laying begins. Both sexes incubate, and they perform greeting ceremonies when exchanging places on the nest. Likewise, both sexes feed the young, which require approximately 6 weeks to attain flight.

**Suggested Reading:** Wiese 1976; Tomlinson 1976.

### Snowy Egret *Egretta thula*



**Breeding Status:** Largely limited as a breeding bird to the eastern half of Oklahoma. There is a breeding record (two nests) for Kansas (Finney County) in 1952 and another (eight nests) for Barton County in 1974. Postbreeding dispersal is frequent as far north as Nebraska and Iowa; breeding occurred in South Dakota in 1977 (*South Dakota Bird Notes* 29:72), and has occurred twice in Nebraska.

**Breeding Habitat:** Snowy egrets occupy habitats ranging from freshwater to saline but prefer relatively sheltered locations. Ponds with low willows, buttonrush, and similar shrubs are favored, as are thick stands of mangroves. In Oklahoma the birds are usually found in heronries of little blue herons, great egrets, and black-crowned night herons.

**Nest Location:** Nests are usually in shrubs or low trees, from 2 to 10 feet above the ground, but up to 30 feet has been recorded. The birds are typically colonial but may nest singly at the edge of their range. The nests are rather flat and elliptical rather than round and are loosely constructed. They are often built of slender twigs a foot or two long, gathered close to the nest site.

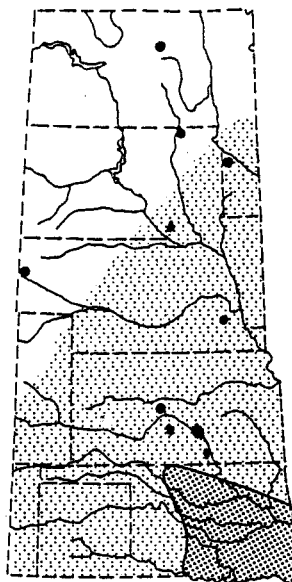


**Clutch Size and Incubation Period:** From 2 to 5 eggs (102 Florida clutches averaged 3.9), with 4 probably the most typical number. The eggs are pale greenish blue with smooth shells. The incubation period is 22½ days. One brood per season.

**Time of Breeding:** Oklahoma records of nesting span from April 4 (birds carrying nest material) to July 6 (young being fed by parents).

**Breeding Biology:** After returning to their breeding grounds, males establish a territory that centers on a potential nest site but need not include an old nest. Besides hostile displays, the male performs several sexual displays that include both a stationary and an aerial "stretch" as major advertisement displays. A single "circle flight" around the potential mate is also common, and a more spectacular flight is a towering circular flight from 50 to 150 yards above the female, followed by a spectacular tumbling downward to land beside her. A mutual display called the "jumping over" display, in which one bird makes a short jump flight over the back of the other, is a probable indication that a pair bond has been formed. The male gathers material and the female constructs the nest. Copulation occurs on the nest site or on a limb close to it. The first egg may be laid before the nest is completed, and eggs are laid about 2 days apart. Since incubation (by both sexes) begins before the clutch is complete, the first young hatches about 18 days after the last egg is laid. After 20-25 days the young are ready to leave the nest.

**Suggested Reading:** Jenni 1969; Meyeriecks 1960.



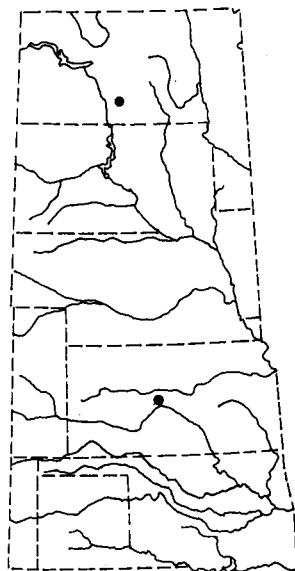
## Tricolored Heron (Louisiana Heron) *Hydranassa tricolor*

**Breeding Status:** Accidental; a 1974 breeding record for the region, in Barton County, Kansas (*American Birds* 28:919), and a 1978 nesting attempt at Long Lake N.W.R., Burleigh County, North Dakota.

**Nesting Habitat:** During the breeding season this species is primarily found near salt water, inhabiting mangroves, tidal marshes, and similar habitats.

**Nest Location:** This species builds nests closer to the substrate than most other herons, usually less than 7 feet up, and rarely above 10 feet. The nests also tend to be in more sheltered and sturdier locations than those of snowy egrets. The species is highly social, at least in most areas.

**Clutch Size and Incubation Period:** From 3 to 6 eggs (38 Florida nests averaged 4.1). Eggs are pale greenish blue with a smooth

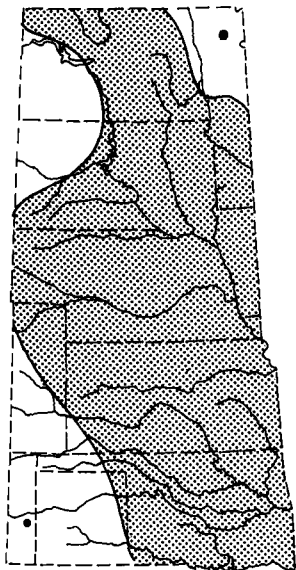


surface. The incubation period is 23–25 days, averaging about 24 days. One brood per season.

**Time of Breeding:** No information for region concerned; in Florida this species breeds at the same time as snowy egrets and little blue herons.

**Breeding Biology:** As in the other herons, the male establishes a territory that includes a nesting site and displays within it, threatening other males and attracting unpaired females. Several threat displays are present, as well as various sexual displays. The most elaborate of these is a combined stretch and snap display, which includes sudden extension of the head and neck, seizing a twig and dropping it, and a series of strong pumping movements. Females are initially evicted from the territory but are gradually accepted, and soon the pair begins mutual nibbling and billing. The male builds the foundation of the nest before pair-formation, but the female completes it while the male gathers material. Copulation occurs on the nest or beside it, before and probably during the egg-laying period. Both sexes incubate and care for the young, which hatch at intervals and remain in the nest about two weeks. As in other herons, many of the nestling losses result from starvation of the youngest chick. By the time they are 24 days old the young are fed away from the nest, and feathering is complete at about four weeks.

**Suggested Reading:** Rogers 1977; Jenni 1969.



### Black-crowned Night Heron *Nycticorax nycticorax*

**Breeding Status:** Breeds locally over most of the region except for northern Minnesota and the drier portions of the Dakotas, Colorado, New Mexico, and the Texas panhandle.

**Breeding Habitat:** Habitats are extremely varied; both freshwater and saline environments are used, and the surrounding terrestrial vegetation varies from swamps to marshes and even includes orchards and city parks.

**Nest Location:** The species nests colonially, on dry ground, in bulrush or cattail marshes, or in trees up to 160 feet above the substrate. The nests are closely placed and often conspicuously situated. Newly made nests are flimsy, but they gain size and substance with repeated use. Nests are often situated in heronries that include other species. In our region, nesting is most frequent in bulrush or phragmites marshes or in groves of trees near rivers, often cottonwoods.

**Clutch Size and Incubation Period:** From 2 to 6 eggs, perhaps with larger clutches in the north (13 North Dakota nests averaged 4.7 eggs; Kansas clutches are typically about 4 eggs). Eggs are pale blue or greenish blue with a smooth surface. Incubation period is 24-26 days; possibly double-brooded in some areas.

**Time of Breeding:** Minnesota egg dates range from May 6 to July 11; dependent young reported from May 26 to July 19, Kansas egg dates range from May 1 to August 1.

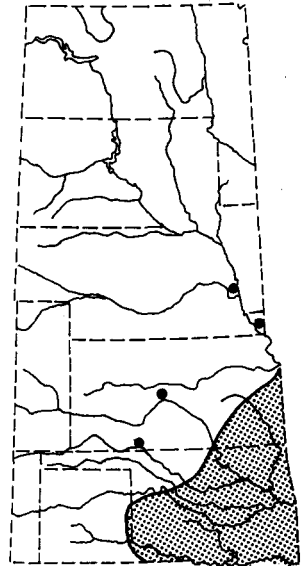
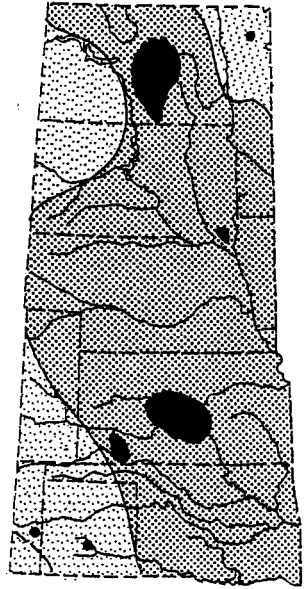
**Breeding Biology:** As in other species, the male begins the breeding cycle by establishing a territory around a nest or nest site, which gradually shrinks to include only the nest itself and the immediate surroundings. Besides various threat postures, males also perform snap displays and a modified stretch display, called the "snap-hiss," accompanied by a raising of the ornamental crest plumes. These attract other birds, and eventually a female is allowed to enter the nest or approach the display site, after which the incipient pair begins mutual behavior such as nibbling and billing. Later the snap-hiss display serves as a greeting ceremony between the pair. The female completes the nest begun by the male, which may require up to a week. The first eggs are laid about 3-4 days after copulation, which may begin a day or two after the pair bond is formed. Incubation is by both sexes and begins with the first egg, so that hatching is staggered over several days. Until they fledge at about 6 weeks, and for a time afterward, the young continue to beg for food from their parents, following them to their foraging areas. Much of the foraging is done at night, which is the basis for the common name.

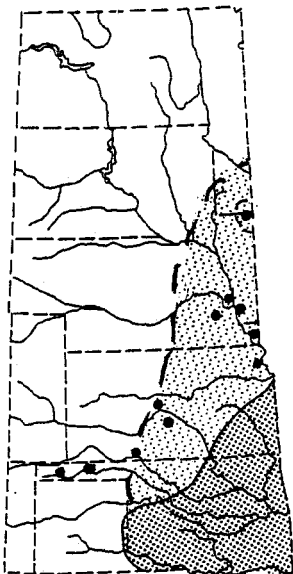
**Suggested Reading:** Palmer 1962; Noble, Wurm, and Schmidt 1938.

## Yellow-crowned Night Heron *Nyctanassa violacea*

**Breeding Status:** Primarily limited as a breeding species to Oklahoma, excluding the panhandle and northwestern areas, and also a local resident in southeastern Kansas, breeding at Cheyenne Bottoms (Barton County) in 1974. It occasionally breeds in northwestern Missouri (Squaw Creek N.W.R.), and there is one breeding record for Nebraska (1963, Sarpy County).

**Breeding Habitat:** Like the black-crowned night heron, this species is found in diverse habitats ranging from saline to freshwater, and even breeds on rocky, nearly waterless islands. In our region it is usually associated with tree-lined river habitats.





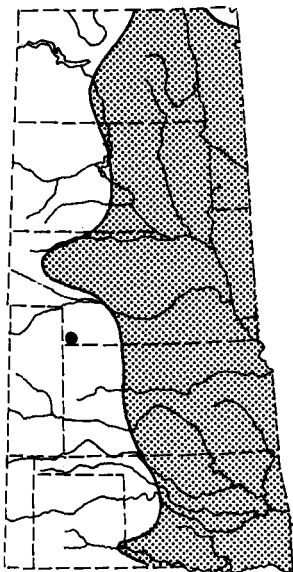
**Nest Location:** Nests in Oklahoma are usually in small, loose colonies separate from other heron species, in trees such as elms, ashes, oaks, box elders, and pecans. Nests there are 30-40 feet high; in other areas the spread has been reported from no more than a foot above the ground to more than 50 feet. Old nests of the previous season are often used, and nests tend to be thick and well built, with materials added through the period of hatching.

**Clutch Size and Incubation Period:** In Kansas the clutch is reported to be about 4 eggs, and 3-5 is the general range for the species, but little specific information on clutch size variation is available. The eggs are pale bluish green with a smooth surface. The incubation period is unknown but presumably is similar to that of the black-crowned night heron. Sometimes double-brooded.

**Time of Breeding:** In Kansas, eggs are laid in May and June. Eggs have been reported in Oklahoma as early as March 25, and broods have been seen as late as August 8. Two broods were raised by one pair in Norman in 1927, which fledged their first brood June 7 and the second 2 months later.

**Breeding Biology:** This species has been studied surprisingly little, but what is known suggests that it is very similar to the black-crowned night heron. The male evidently establishes a territory around a nest or nest site and advertises it with displays that probably include the stretch, accompanied by a loud whooping call. After pairs are formed, both sexes help complete the nest. Both sexes also incubate, and nest-relief ceremonies include billing, feather-nibbling, and plume erection or the stretch display. Both parents also feed the young, but there is no specific information available on their fledging period or rate of growth. However, fledging must require no more than 4-5 weeks, based on the timing of the second brood mentioned above.

**Suggested Reading:** Palmer 1962; Nice 1939.



### Least Bittern *Ixobrychus exilis*

**Breeding Status:** Probably breeds over the eastern half of the entire region under consideration, but apparently fairly uncommon to rare throughout. It is rare and local in North Dakota and relatively rare in Nebraska, judging from the few nesting records.

**Breeding Habitat:** In this region the least bittern is associated with freshwater or slightly brackish marshes and lakes that have extensive stands of cattails, bulrushes, and other rank vegeta-

tion. It is thus not usually found around large impoundments or rivers, where water levels may fluctuate. Marshes with scattered bushes or similar woody growth are favored.

**Nest Location:** Nests are built above shallow water, in living or partly living stands of bulrushes or cattails, often close to open water. The nest is made of both dead and living materials and is usually about 6-8 inches across, round or oval. It has a foundation of dried leafy material and twigs that are arranged in a spokelike manner a foot or two above the water, with arched-over vegetation above.

**Clutch Size and Incubation Period:** From 3 to 6 eggs; the clutch is often about 5 in northern areas and somewhat smaller farther south. In Iowa, 59 clutches ranged from 2 to 6 eggs and averaged 4.4. Eggs are very pale bluish or greenish with a smooth surface. Incubation period is 17-18 days. Regularly double-brooded, at least in some areas or in favorable years.

**Time of Breeding:** In Iowa, nests are initiated from the beginning of June until the middle of July. In North Dakota, nests with eggs have been seen between June 15 and June 28. Kansas egg dates range from May 21 to July 20, and egg records for Oklahoma range from June 5 to July 21.

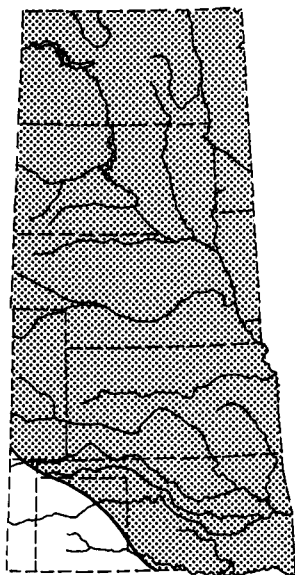
**Breeding Biology:** In Iowa, birds arrive on their breeding marshes about 2 weeks before the start of nesting. Little information is available on territoriality, but since nests are often fairly close to one another, territories must be rather small. The male's advertising call is a series of soft cooing notes, and presumably visual displays are also performed. Males evidently choose a nest site and do the early nest-building, as in other herons. Pair-forming displays still are unknown but probably involve mutual preening and crest-raising, since these occur during nest-relief ceremonies. Both sexes incubate, sharing incubation time about equally. Likewise, both sexes feed the young, but the male assumes the major role in this. The young usually remain in the nest for about 10-14 days but may leave it for short periods when only 6 days old. The adults continue to feed the young after they have left the nest, but at least at times they soon begin a second clutch.

**Suggested Reading:** Weller 1961; Palmer 1962.

## American Bittern

*Botaurus lentiginosus*

**Breeding Status:** Nearly pandemic through the region, except for the Texas panhandle and northeastern New Mexico (but breeds in



southeastern New Mexico at Bitter Lake N.W.R.). Throughout the area its breeding distribution is local, associated with marshes or tall grasslands.

**Breeding Habitat:** The species is generally associated with marshes, swamps, and bogs, where there is an abundance of bulrushes, cattails, and similar emergent vegetation. Also breeds in wet swales and in tall fields of grass.

**Nest Location:** The American bittern normally nests in a solitary manner in tall vegetation, usually cattails, bulrushes, or dense grasses, either on dry ground or on a mound several inches above the water. The nest platform is relatively scanty but usually is very well hidden from above and from the side, by the arching over of vegetation above it.

**Clutch Size and Incubation Period:** From 2 to 5 eggs (19 North Dakota nests averaged 3.9); eggs are buffy brown to olive buff, the surface smooth and slightly glossy. Incubation period is 24-28 days. Single-brooded.

**Time of Breeding:** Egg dates in North Dakota range from May 31 to August 2. Minnesota egg dates are from May 20 to June 20. Oklahoma breeding dates range from May 5 (eggs) to August 5 (well-developed young).

**Breeding Biology:** Relatively little is known of the social behavior of this elusive bird, but males evidently establish and advertise territories with their distinctive "pumping" call, especially at dawn and dusk. However, the male starts no nest during this period. Females are attracted to such territories and form apparently monogamous (possibly polygamous) pair bonds. Copulation has been observed on open ground, after the male displayed his white "shoulder" plumes and persistently advanced toward the female while repeatedly lowering and swaying his head from side to side, as if he were regurgitating food. After overtaking the retreating female he simply climbed on her back, grasped her nape, and copulated. No specific postcopulatory behavior was noted (personal observations). The female evidently chooses the nest location (about 50 yards from the area of copulation in a case personally noted) and apparently does all the nest-building and incubation. The male takes no part in defending the nest, but the female defends it fiercely. The young remain in the nest for about 2 weeks, but the fledging period is still unrecorded.

**Suggested Reading:** Palmer 1962; Mousley 1939.